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Southern Biological Supply Co., INCORPORATED

517 Decatur Street
New Orleans, La.

CATALOG "C"
REVISED FOR SCHOOL AND COLLEGE USE

LIVING ANIMALS AND PLANTS
for
AQUICULTURE

Aquaria
Outdoor Pools

Vivaria
Water Gardens

October, 1931 Edition

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Fanwort, *Cabomba caroliniana*

These are among the most beautiful aquatics for aquaria and outdoor pools.



Water Milfoil, *Myriophyllum spicatum*



Fish Grass, *Potamogeton pusillus*

These are two of the most valuable aquatic plants in fish, tadpole and duck ponds.



Water Weed, *Elodea canadensis*

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GENERAL ANNOUNCEMENT

The science of life becomes a living subject only when the biological laboratory or natural science school room is equipped with a number of miniature worlds represented by different types of aquaria and vivaria. Where it is possible in addition, to construct one or more pools outdoors upon the college or school grounds, or in hot houses, the interest of the students in this study is greatly enhanced.

We are admirably prepared to supply the laboratory or school aquarium or vivarium with its beautiful gems of gold or green. We can furnish for the outdoor lily pond or fountain pool, a variety of ornamental plants noted for their beauty of form or flower, and many kinds of unique or interesting fish or other aquatic animals. It is not our desire here to list everything available along these lines. We specialize primarily in native species which have proven themselves susceptible to artificial cultivation, and a few exotic species which are of world wide fame. If there is anything along these lines which you do not see listed, we can either get it for you or let you know where it can be obtained.

The animals and plants described in the following pages are selected primarily for those interested in studies in aquatic biology, although a few vivarium species are also included. The basic physiological reactions of plants and animals are brought home to the elementary student best by means of the balanced aquarium. Nothing illustrates nature's adaptations better than a diversity of aquatic organisms. For studies in heredity and selection, both elementary and advanced, and for hybridization experiments, we recommend especially the tropical fishes among the animals and the native irises among the plants.

No attempt is made in this catalog to list any of the so-called laboratory types. For these the customer is referred to our Catalog A. There is, however, a slight amount of duplication, and with some of the animals it will be noted that the prices herein quoted are slightly higher than for laboratory stock. This is because they are very carefully selected, paired adults suitable for study of their breeding habits in aquaria, vivaria, or outdoor pools.

Terms: Our prices are net, cash in advance, F. O. B. New Orleans, and include all packing charges, and shipping cans and crates except for fish (See Part Three). Private parties should send cash with order, as we open no accounts except with recognized institutions of good credit standing. To avoid delay, please send a deposit sufficient to cover prepaid transportation. Any surplus will be returned or credited. No live stock is sent C. O. D. References:

The Whitney Bank, New Orleans, the Commercial Agencies. Ask your bank to look us up. We have been in business sixteen years.

Shipment: Unless otherwise instructed, we ship material by that way which best suits the nature of the articles shipped and the time required for delivery. When other things are equal, we ship by the cheapest way. Living Daphnia and other minute organisms and living plants, when not too bulky, are shipped by parcel post. Live animals, such as snails, crayfish and certain amphibians and reptiles, when in small quantities, can also be shipped by parcel post, but generally, larger animals and fish can be sent by express only.

Claims: Containers and specimens should be checked and inspected immediately upon receipt of goods in the presence of the express agent or witnesses, and a bad order report taken from the express agent in case of shortage, breakage, leakage or death. Satisfactory evidence of deaths of fish or other animals must be furnished by the customer at his expense.

Guarantee: All animals and plants, to our best knowledge and belief, leave our establishment in good healthy condition, and are properly crated or packed. In the event of a loss through deaths in transit, and negligence cannot be traced to the express company, we will stand good for the loss (exclusive of transportation charges) only if a bad order report is taken and positive evidence furnished as above instructed. Either a refund will be made or a shipment of the number lost will be sent as a replacement, but transportation charges on the second shipment must be borne by the consignee.

The minimum amount of any single item sold (except in collections) is fifty cents (\$0.50).

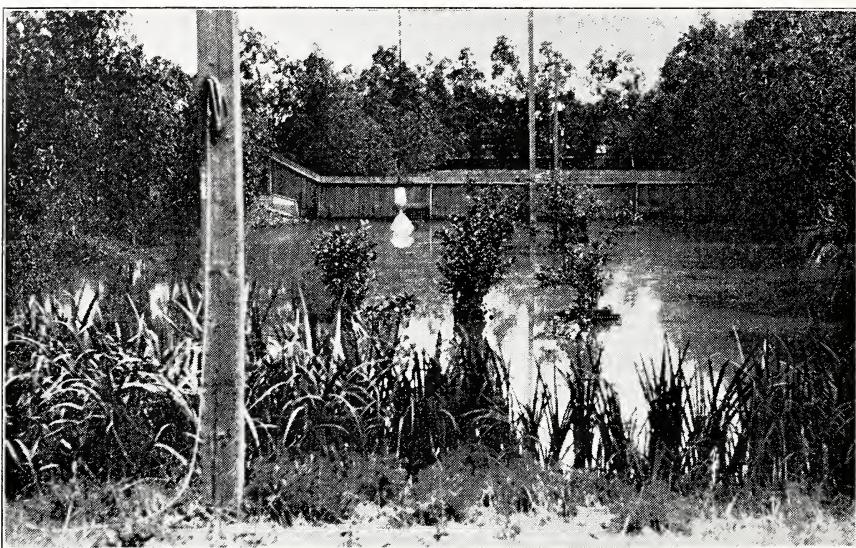
This list cancels all previous lists.

SOUTHERN BIOLOGICAL SUPPLY CO., INC.

Established 1915.

Incorporated 1917.

October, 1931.



View in Our Frog Pens

Note the abundant shade at the shoreline and on the banks. Water flag, Iris, is seen in the foreground, willow along the sides and background, and buttonbush in the water. The thousand-watt light furnishes insect food at night.



Bullfrog Spawn

A batch of bullfrog eggs about to hatch in one of our incubator pens. Some of the young tadpoles can be plainly seen on top of the lily pads. A large batch may contain 15,000 or more eggs.

PART ONE

THE PRINCIPLES OF AQUICULTURE

Useful Books on Aquiculture: For complete instructions on preparing aquaria, we recommend "Goldfish Varieties and Tropical Aquarium Fishes," by William T. Innis; price \$4.00. The "Modern Aquarium," by the same author, is a fine book for a dollar. An excellent handbook, entitled "Aquaria," by Chas. N. Page, can be sent post-paid for 35 cents. "Water Gardening," by Dr. Peter Bisset, the best work on this subject, is profusely illustrated with plans, etc., price \$5.00. We can supply the above books as an accommodation to customers.

Because the principles of aquarium fish culture are amply described in literature we will not give any instructions on that subject in this catalog. For the handy reference of our customers, especially those not experienced in methods of aquiculture, and to facilitate their use of the catalog, we give below a few notes on various phases of the subject.

AQUATIC PLANT CULTURE

As is the case with land plants, all water plants grow best when cultivated, although no garden implements are needed except on large projects to destroy or rake out undesirable growths occasionally. When dry, a pool may be fertilized by scattering manure, bone meal, blood meal, hay, dead leaves, dead fish, or other organic material over the area. This is covered with good garden soil, then moistened and allowed to become thoroughly rotted. Aged manure will save this delay. The soil may be topped with an inch of clean sand to prevent fouling of the water. The pool is then filled with water and the plants set out as directed below. Any undesirable growths should be removed when young or before they become firmly established, and in any event should never be allowed to go to seed. The types of plants used in aquiculture may be divided into five groups.

Group A—Water Plants With More or Less Submerged Leaves:

Wild celery is a valuable food plant and oxygenator. It should be rooted in rich soil, preferably sandy, in water from a few inches to four feet deep.

Muskgrass, coontail and various so-called **water weeds** and **pond plants** are all more or less useful in aquaria and outdoor pools, as they furnish food, oxygen and hiding places for aquatic life. For outdoor pools they can be clamped together in small bunches by fastening the stems with little bands of sheet lead, and simply dropped overboard. The lead will cause them to sink and prevent wind or current from carrying them into one side or corner of the pool.

Group B.—Floating Plants:

Water Hyacinths, Water Lettuce, Water Fern, Duck Weeds, etc. Useful for study, but not generally recommended for fish or tadpole ponds unless thinned out frequently, for they become veritable pests and limit the oxygen supply when they cover the surface. The water hyacinths and water lettuce are useful for gathering gold fish eggs which are attached to their roots. They are also excellent food plants for crayfish and pond turtles and can be grown for that purpose. A few are also useful in small frog ponds if not allowed to become too dense.

Group C.—Rooted Shallow Water Plants With Floating Leaves:

The floating leaf pond plant (*Potamogeton natans*), is one of the best of shelter plants for fish and the small animals upon which they feed, for the small thin surface leaves are not dense enough to exclude oxygen from the water below. These are planted simply by scattering or by weighting clusters with small bands of sheet lead.



The White Water Lily, *Castalia odorata*

This hardy native water lily, which will grow anywhere in the United States, has one of the most beautiful and sweet scented of all flowers. We supply a dwarf form (minor) for aquaria as well as the large outdoor form. We also have the giant, white, closely related species (*leophylla*).

Water Lillies. For goldfish or tropical fish ponds, lilies do well, especially if prevented from covering the entire pond. This is best done by planting in pots, tubs or boxes. Lilies are simply rooted beneath the soil. The soil in such boxes should be fertilized with cow manure or bone meal (see "Care of the Water Garden").

Group D.—Shallow Water Plants With Emergent Leaves:

Arrowheads, sometimes called duck potatoes, are represented by several more or less ornamental species. Their roots should be planted beneath the soil in water from two to eighteen inches deep, preferably in clayey or alluvial soil. The early stage is thoroughly aquatic, a good oxygenator and a perfect food and protection for crayfish, tadpoles, and other water creatures. As the heat of summer advances, their leaves rise above the water and provide the necessary shade to prevent overheating.

Pickerel Plants should be planted in groups or clusters in one to two feet of water. A good plan is to use galvanized tubs or cypress boxes filled with dirt and submerged where wanted. They will also grow in damp soil at the water's edge.

Lotus. While the lotuses have beautiful emergent leaves, they also have floating leaves. They are very ornamental plants, but should be kept under control by planting in tubs. The roots or tubers are simply planted beneath the soil in about 12 inches of water.

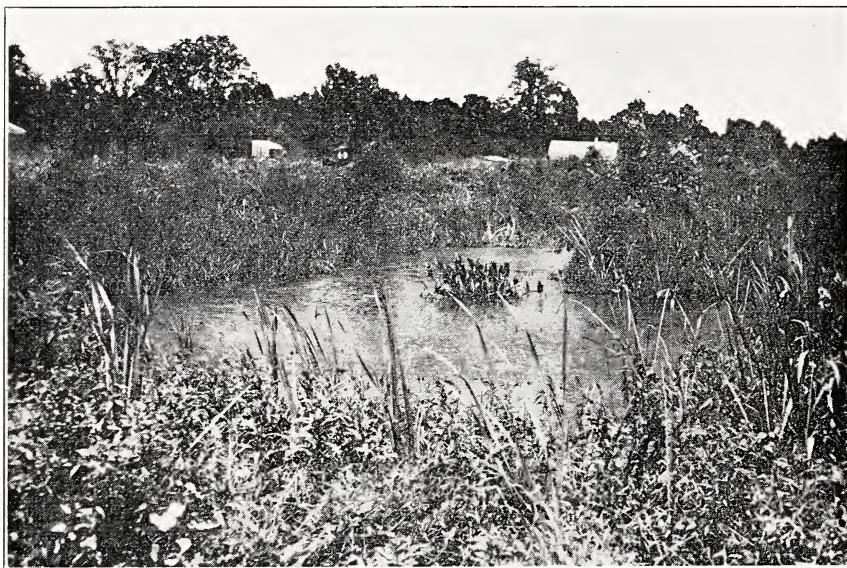
Water Iris, now available in several types and many colors, are the ideal shoreline or bog plants, for they will grow in the shade of trees, and will never become pests. Plant the roots in damp soil from 1 to 2 feet from the edge of the water, and from 6 to 12 inches apart. Where additional ornamental plants are desired for variety, we recommend the **Egyptian papyrus**, the **arrow arum**, the **water canna**, the **cala**, and the **umbrella palm**. The **cattail** and **bullrush** are also useful if kept at the shoreline, but must be kept under control or they will spread over the entire area.

Willow, Buttonbush, Marsh Mallow, and Cypress. Plant along the shoreline in damp soil 2 to 4 feet from the water's edge. Cover roots completely but do not plant too deeply. Plant willow, buttonbush, and marsh mallow 6 to 10 feet apart; cypress, 20 to 40 feet. Willow, buttonbush and marsh mallow are fast growing and provide good shade in 1 to 2 years, cypress in 10 years, so where cypress is desired, a temporary growth of fast growing trees is recommended. These can be thinned out later as the cypress foliage spreads.

CARE OF THE WATER GARDEN.

For producing large blooms, the pool itself, the center of your water garden, should be in a sunny location. The background and shoreline plants may be in partial shade. In the north, a pool should be three feet deep if it is desired to winter the plants and fish in the pool. One foot depth is ample, however, in the gulf coastal states, or other sections where freezes, if any, are light. Tropical fish and tropical lilies, of course, should be wintered indoors.

In sections where severe freezing occurs, in order to prevent cracking of the cement, the banks should be sloping. Saucer shaped pools are best in any event. All pools should be filled with water throughout the winter. A new pool must be aged by changing the water several times before introducing fish.



A Naturalistic Water Garden

A photograph cannot do justice to this beautiful pool in which only native ornamental water-loving plants are growing.

Lilies and lotus and other rooted aquatics may be planted in the pool or in pots or boxes, depending upon the effect desired, and whether the different species are to be left separate. Good garden soil is suitable, and cow manure is a complete fertilizer, producing the largest blooms. However, manure tends to cause fungus growths on fish, and bone meal is often employed instead. Clams, snails, tadpoles and forage minnows should be employed to keep the water clean. (See Part Three). Covering the fertilized soil with an inch of sand also tends to keep the water clean.

INFUSORIA CULTURE

Method A. Collect a mixed mass of living water plants, such as hornwort, coontail, elodea, sagittaria, vallisneria, etc., and chop in small pieces. Use about 2 ounces of the chopped plants to each gallon of water. If dried water plants are substituted, use about one-half ounce to each gallon of water. Hay, dried grass or other material may be substituted for water plants if the latter are not available. Pond water, or any purified city water which is not heavily charged with chlorine or other chemicals, is suitable. Keep uncovered in a warm dark place.

The plants decay in a few days and a heavy scum of bacteria will appear on the surface in one or two weeks in ordinary weather. If living water plants are used, or if the culture prepared from dried material is inoculated with pond water or with a known culture, infusoria will form in this scum.

To obtain a pure or nearly pure culture of infusoria, sterilize plants and water by boiling together for about fifteen minutes, making a tea-like infusion. Allow to stand a few days open and in a dark place, and then add a paramecium or other protozoon culture purchased from a reliable source, or at any rate, from some known source.

After the bacteria scum begins to clear up, especially when the edges of the plants appear whitish from the masses of protozoa, the water and plants can be fed into tanks containing baby tropical fish. To determine the presence of infusoria, if no microscope is available, hold some of the water, just as it begins to clear up, to the light in a medicine dropper and if infusoria are present, they can be seen as little white specks moving about in the dropper. Some tropical fish culturists prepare these cultures in pools holding fifty to two hundred gallons of water, and when the infusoria are in the proper stage, they transfer the new born tropical fish directly into these tanks. There is usually enough infusoria to keep them going until they are large enough to feed on Daphnia.

Method B. Perhaps the best method of raising the bacteria is to follow the usual bacteriological technique using the standard bouillon culture medium.

Water.....	1 gallon
Extract of beef.....	.5 level teaspoons

Boil this fifteen minutes and allow to cool. Then dissolve in one level teaspoonful of lye. Keep the solution open but in a dark place and replace any water that evaporates. It should be ready, depending upon temperature, in from one to 4 weeks when a scum forms on the surface.

Now furnish a crock or wooden tub of clean water, and inoculate with a known culture of infusoria or place in a few submerged water plants and a little mud from the bottom of a pond or ditch. The infusoria can be fed by

pouring a glass full of the bacterial solution into the container about every second day. Keep the infusoria tub covered and in diffused light but do not place it in the direct sunshine.

When the bacterial solution is about half used up start another culture so that you do not run out of the bacterial solution. Do not make more than one gallon of the bacterial solution at a time, as this should be from 2 to 6 weeks old when fed to the infusoria. A tumbler full of the first bacterial solution will start the second culture more rapidly.

DAPHNIA CULTURE

Daphnia culture requires three successive steps or stages. They feed entirely on infusoria, so we must first prepare the infusoria which in turn requires the preparation of a bacterial culture.

Method 1. Three steps in one container. Prepare an infusoria culture as in Method A, above, and when the scum clears up and infusoria are numerous, pour in a culture of Daphnia secured from a known source or from some temporary pool. When cultured in this manner, a new bacterial culture must be started in another container 2 to 4 weeks later and the cycle repeated in order to insure a continuous supply, for the Daphnia in the first lot will die out when the food supply gives out.

Method 2. Three steps in two containers. Prepare an infusoria culture as in Method A, above. Now prepare another tub in which the Daphnia are placed. This should have a good many submerged water plants to supply oxygen unless a compressed air outfit is provided. Prepare a net of fine white bolting silk and skim off some of the infusoria from the culture and feed it to the Daphnia once or twice a day. A new infusoria culture must be started when the other is about half used up.

Method 3. Three steps in three containers. Prepare an infusoria culture in two separate containers as in Method B, above. Now prepare a third or Daphnia tub and feed with infusoria as described in Method 2. Remember that in this method three containers are needed for the successive steps, a jar for the bacterial culture, a crock for the infusoria, and a tub for the Daphnia, or larger containers in the capacity ratio of about 1, 5, 25.

ENCHYTRAE CULTURE

For cultivating Enchytrae or white worms, prepare a box, preferably of cypress or some rot-resisting wood, with a capacity of two or three cubic feet. A tight fitting glass or wooden cover is placed on top, a hinged cover being best.

Fill the box half full with good moist (not wet) humus soil, from which all earthworms or insect larvae have been removed. A good admixture of leaf mold improves the soil. Place in a culture of the worms and then keep covered and at a temperature under seventy degrees. An average temperature

of 60° F. is best. Be sure the hunus does not harden from drying out. Keep out ants and beetles, which are their chief natural enemies.

Feed the worms with sour milk, cheese refuse, white bread, boiled potato (mashed), or similar starch foods. Dig small holes with a spoon or trowel, place the food therein, and cover lightly with the earth, or damp sphagnum. Repeat as often as the food is consumed, every few days, as experience dictates. Boiled oatmeal and evaporated milk, fed alternately about three times a week gives excellent results. Use milk sparingly and do not overfeed as the soil will become sour and destroy the worms. A good culture should be ready to harvest within a month.

The worms may be removed from the soil by placing a few scoops in a pan with just enough water to cover. They will come out of the soil and bunch together at the surface. If a pane of glass is placed tightly on top of the receptacle, the worms in time will crawl up the sides and attach themselves to the underside of the glass cover.

Enchytrae are especially desirable for feeding tropical fishes in the winter time. Goldfish are also very fond of them and they should be fed to them occasionally as a supplement to their vegetable diet. An increase in size will be soon noted and the fish will become vigorous and healthy.

TENEBRIOS CULTURE

Tenebrio or mealworms can be grown best in glass or earthenware jars containing bran, corn meal or other meal. If fed liberally in containers of sufficient size, they will grow rapidly and transform into beetles which will, in turn, lay eggs producing a second and much larger crop of mealworms.

Mealworms are an excellent food for salamanders, frogs, toads and lizards, and for sunfish and cichlids. They can be separated best from the meal by sifting.

INSTRUCTIONS FOR KEEPING LIVE CRAYFISH IN CAPTIVITY

Mortality among crayfish in captivity seems to be due chiefly to one or more of several causes. The foremost usually is lack of oxygen. This occurs even in pure water. Then there may be stagnation and poisoning of the water due to dead animals or decaying food stuffs, the animals suffering not only from lack of oxygen, but from absorption of the poisons developed during decomposition. Little is known of their parasites or bacterial diseases but there seems to be some evidence of fatal epidemics from such causitive organisms.

Adult crayfish do not secure enough oxygen from the water through their gills, and it is necessary for them to come to the surface frequently for air. Here they lie on one side and expose their gills to the atmosphere. If placed in a tank of deep water, they are almost sure to succumb within a few hours, unless there are water weeds or other vegetation upon which they can climb

to the surface. If a tank containing plant life cannot be provided, a good plan is to provide stones or wood work upon which they can climb to the surface. A tank with a sloping bottom which reaches above the water level is still better.

For keeping them for short periods in the laboratory, the plan we recommend is to have not more than one-half inch of water in the tank or container. If slowly running water cannot be provided, a change should be made at least every twenty-four hours and all dead animals removed. Adult crayfish will live for several weeks in water one-half inch in depth without feeding, especially in a cool room.

If it is desired to keep them more than several weeks, we recommend feeding with any vegetable or animal matter—a mixture giving the best results. Among the water plants, sagittarias and rushes seem to be highly desirable foods, but they will feed upon almost any water plants. Cooked vegetables, such as boiled potatoes, and any table leavings, are excellent. It is important not to allow any of the food to decompose in the water when the crayfish are concentrated. If in large tanks with living vegetation, and they are not crowded, an excess of food will not hurt, unless it is enough to foul the water.

INSTRUCTIONS FOR KEEPING LIVE AMPHIBIANS IN CAPTIVITY

Amphibians as a rule require little or no sunlight. If outdoors, abundant shade is required, if indoors, a position near a north window produces the best light effect. They can stand considerable cold, temperatures down to the freezing point producing no ill effects with most, while some can stand even lower temperatures.

Since most amphibians secure their oxygen from the air, and since even the aquatic stages or species require considerable oxygen, it is best to provide shallow water during the summer. Even where aquatic plants are abundant it is often very tiring for them to come to the surface for the extra air they may need. In winter the water level may be raised to prevent sudden temperature changes, if outdoors.

Since amphibians are essentially shoreline creatures, major attention should be given to the shoreline. A damp, sloping, well shaded shore is always best. With this provision, the other side of the tank or pool may slope away to any depth desired. Even *necturus* or *cryptobranchus* will live well in such tanks, but running water is preferable for these. For most other amphibians, running water is not necessary and often undesirable, although a fine jet of water may be played upon the aquarium or pool to provide oxygen and a slow change of water.

INSTRUCTIONS FOR KEEPING LIVE REPTILES IN CAPTIVITY

In preparing a pen for live reptiles, it is highly desirable to provide both shade and sun, and a water and land area. A tank or pen with a sloping bottom, and so arranged that the water level can be raised or lowered, is best. About half each of the water and land area could be shaded and the remaining half exposed to the sun. The sun area may be increased during the winter

and the shade area during the summer, just as is the case in their natural haunts due to foliage.

Alligators. The American alligator is usually very hardy in captivity and will not die if properly protected from freezing. They will stand temperatures as low as the freezing point in the wild state, but below 50° is not advisable in captivity. The older they are, the more exposure they can stand; consequently, young alligators must be given more protection than large specimens.

We do not recommend, however, that they be kept at summer temperatures throughout the winter. During this season it is usually best to keep them in a cool section of a room or basement in a tank of water. They will remain under the water with only their noses out during cold periods. As it is customary for alligators to sun themselves frequently during the warm periods of the winter, we advise that some arrangement be made for sunning, whenever conditions permit. Perhaps artificial sunlight would be a suitable substitute in the northern sections of the country.

Alligators will feed on practically any animal food, meat of any description, small mammals, birds, frogs, fish, crustaceans, and even insects such as beetles and grasshoppers being highly desirable. In the event animal food is not available, they will take stale bread when hungry, especially if it is flavored by dipping in a broth made from beef extract, beef scrap, dried blood, shrimp bran or fish meal. Food should be placed at the edge of the water so that any surplus can be removed. Two or three heavy feedings a week is sufficient to keep them in healthy condition. In the south they usually stop feeding for about three months of the year, November 15th to February 15th being their most inactive period. They do not enter into a period of continued hibernation, however, becoming active whenever the weather is warm and sunny. During the winter the water level may be elevated during cold weather, as this causes the temperature changes to be more gradual, whereas in summer all they need is sufficient water to drink and for them to feed in, as it is difficult for alligators to feed on land.

Turtles. The requirements for turtles are very similar to those for alligators, although many species can subsist largely upon a vegetable diet. Tortoises or box turtles like a shelter or hut of some kind.

Snakes and Lizards. The water or land area can be varied according to requirements of the species, but even dry land species love plenty of water. We have had a timber rattlesnake to hibernate under water, and horned toads submerge themselves frequently. A sloping bank is far better, in any event, than a water pan. If outdoors, one corner of the pen, at least, should be high and dry and sheltered from rain.

PART TWO

ANIMALS AND PLANTS FOR THE OUTDOOR POOL OR WATER GARDEN

ANIMALS FOR THE WATER GARDEN.

While the water garden is primarily a display of plant life, since we have had numerous requests from time to time for various animals which would give an added touch to these naturalistic creations, we believe the following suggestions are in order:

Clams (N 11) or **fresh water mussels** (N 12) are recommended for keeping the water clear. They feed upon microscopic plants and thus prevent "green water" or so called "water bloom". Each clam will clear from 1 to 5 cubic feet of water.

As in aquaria, **snails** and **tadpoles** are the best scavengers, the large **Viviparus** (N-10) and the bull frog and greenfrog tadpoles (N-45 and N-46) being the most conspicuous in outdoor pools.

Among the **fishes** suitable for outdoor pools, the goldfish (N-32) and the mollieenesias (N-25 and N-26) are the best forage fish, but these must not be put in a pool until it is well aged with several changes of water. Goldfish grow to a large size in outdoor pools. Tropical fish can be kept outdoors only in suitable weather. Various native minnows are excellent in outdoor pools and become quite tame. **Fundulus chrysotus** (N-35) is one of the best. A supply of **Gambusia** (N-21 or N-22) is the safest plan to prevent a mosquito nuisance from developing. Of course black bass and sunfish do well in outdoor pools, but will feed upon the smaller species.

Amphibians

A few **frogs** will always remain in the vicinity of an outdoor pool even when there is no surrounding fence, unless there is some larger pond or lake nearby to attract them. **Bullfrogs** (L-1) and **greenfrogs** (L-10) are no doubt the best species for this purpose, for they will spawn readily in small concrete pools and the growth of the tadpoles can be watched with interest. **Toads** and **tree frogs** are always good to have around a garden as they feed upon the slugs, sow bugs and destructive insects which devastate a garden at night. They will never leave a garden in which there is a pool. The green tree frog is the favorite, not only because it is a beautiful creature, but because it lives among the aquatic plants where it can be seen hopping about, rather than being hidden in nearby trees as is the case with most other species.

- L-1 **Bullfrogs** (*Rana catesbeiana*). Giant Louisiana Race. Preferred shipping season, September 1 to May 1. Summer shipments with special packing. Unless otherwise requested, equal numbers of both sexes will be shipped. Largest Adult Breeders—\$3.00 per pair, \$15.00 per doz., \$100 per 100. On prepaid shipments add express charges on shipping weights of approximately 10 lbs. per pair, 16 lbs. per 3 pairs, 32 lbs. per doz., 250 lbs. per 100.
- L-2 **Giant Bullfrog Tadpoles**, nearly ready to transform, captive bred. Shipping season October 1 to June 1.....\$1.50 per doz., \$10.50 per 100
Shipping weight, 5 lbs. per doz., 50 lbs. per 100.
- L-3 **Young Bullfrog Tadpoles**, May 1 to October 1—\$1.50 to \$10.00 per 100.
- L-10 **Greenfrogs** (*Rana clamitans*). Available entire year. Unless otherwise requested equal numbers of both sexes will be shipped.
Largest Adult Breeders.....\$2.50 per doz., \$15.00 per 100
Add express charges on shipping weights of approximately 10 lbs. per doz., 50 lbs. per 100.
- L-11 **Large Greenfrog Tadpoles**, October 1 to May 1—\$1.50 per doz., \$9.00 per 100.
Shipping weight, 4 lbs. per doz., 25 lbs. per 100.
- M-1 **Toads** (*Bufo fowleri* or *Bufo valliceps*), \$4.00 per doz.
M-2 **Green tree frogs** (*Hyla cinerea*). \$4.00 per doz.
A complete list of other toads and frogs is available for those interested.

Reptiles

Strange to say, it is among the **reptiles** that we find the most attractive animals for the water garden. Alligators, pond turtles, and terrapin are generally called for (L-50 to L-62; see also N-50 and N-51). Four ornamental species of pond turtles (L-60), and the beautiful southern painted turtle, are available. A sloping shelf like bank or projecting log is necessary for pond turtles and alligators to come up and sun themselves. Box turtles are also interesting and become quite tame. The American chameleon, a very attractive and valuable insect destroyer, also likes to hang around the water garden, for it loves to drink several times a day.

Alligators, available entire year, except in extreme cold weather.

		Less Than Twelve Each	Twelve or More Each
L-50	33-inch average	\$5.00	\$4.50
L-51	27-inch average	3.50	3.00
L-52	21-inch average	2.50	2.00
L-53	15-inch average	2.00	1.50
L-54	Babies, less than 12 inches.....	1.50	1.25

(Large sizes can be supplied—Prices on application)

L-60	Pond Turtles (Cumberland, Mobilian or Freshwater slider Terrapin), available entire year, except in severe weather.	
	Large adults, in pairs.....	\$2.75 per pair, \$10.00 per doz.
L-61	Snapping Turtles , in pairs, 30¢ per lb. net, live weight at time of shipping.	
L-62	Diamond Back Terrapin (<i>Malaclemys pileata</i>).	
	Large adults, in pairs.....	\$6.50 per pair, \$35.00 per doz.
M-3	Southern Painted Turtle (<i>Chrysemys marginata dorsalis</i>).....	\$1.50 each
M-4	Three-toed Box Turtle (<i>Terrapene carolina triunguis</i>).....	2.00 each
M-5	Four-toed Box Turtle (<i>Terrapene major</i>).....	1.50 each
M-6	Chameleons (<i>Anolis carolinensis</i>), American changeable lizard	\$1.80 per doz.

A complete list of Louisiana Reptiles is available for those interested.

PLANTS FOR THE WATER GARDEN.

While we specialize primarily in the cultivation of native ornamental aquatic plants, we also list below a few exotics of proven value in the outdoor pool or pond. All plants listed by us except as noted, are perennials and will start new growth every spring if given proper care and conditions.

Group A—Water Plants With Submerged Leaves

The aquatics of this type listed in Parts One and Three of this Catalog are all suitable for outdoor pools, for oxygenating the water and keeping it clear and clean. We recommend especially, **Giant Anacharis**, **Giant Vallisneria**, **Cabomba** and the **Potomogetons**.

M-10	Giant wild celery (<i>Vallisneria sp.</i>).....	\$0.50 for 6, \$0.80 per doz.
M-11	Fanwort (<i>Cabomba caroliniana</i>).....	.50 for 6, .80 per doz.
M-12	Giant Anacharis (<i>Elodea canadensis</i>).....	.50 for 6, .80 per doz.
M-13	Crispy pond weed (<i>Potamogeton crispus</i>).....	.50 for 6, .80 per doz.
M-14	Water milfoil (<i>Myriophyllum spicatum</i>).....	.50 for 6, .80 per doz.

Water Garden Collection A, one portion (six plants) of each of the above five species, \$2.50 value for.....\$2.00

Group B—Floating Plants:

M-20	Water hyacinths (<i>Eichornia crassipes</i>).	
	Beautiful lavender flowers.....	\$0.50 for 5, \$1.00 per doz.
M-21	Water lettuce (<i>Pistia stratiotes</i>).....	.50 for 5, 1.00 per doz.
M-22	Frog bit (<i>Lymnobium spongia</i>).....	.50 for 5, 1.00 per doz.
M-23	Floating heart (<i>Nymphoides peltatum</i>).....	.50 for 5, 1.50 per doz.
M-24	Floating fern (<i>Ceratopteris thalictroides</i>).....	.50 for 3, 1.50 per doz.

Group C—Rooted Shallow Water Plants With Floating Leaves:

M-30	Water poppy (<i>Limnocharis humboldti</i>).	
	Yellow flowers	\$0.50 for 3, \$1.50 per doz.
M-31	Water shield (<i>Brasenia purpurea</i>).....	.50 for 3, 1.50 per doz.
M-32	Floating leaf pond plant (<i>Potomogeton natans</i>)50 for 6, .80 per doz.

Water Lilies (all hardy species except M-46)

Native Species—

M-40	Spatterdock, yellow cow lily (<i>Nymphaea advena</i>).....	\$0.50 each
M-41	Banana water lily (<i>Castalia flava</i>), lemon yellow flowers.....	1.00 each
M-42	White water lily (<i>Castalia odorata</i>), large sweet scented flowers50 each
M-42B	Giant white water lily (<i>Castalia lekophylla</i>).....	\$1.00 each
M-42C	Dwarf white water lily (<i>Castalia minor</i>).....	.50 each

Exotic Species—

M-43	Zanzibar blue	\$1.50 each
M-44	Zanzibar rose	2.00 each
M-45	Chromatella, Marliae yellow.....	2.00 each
M-46	Devoniensis, rosy red, night bloomer.....	1.50 each

Water Garden Collection BC. Floating and floating leaved plants, five named species, our selection (no water lilies or lotus included). One fifty-cent portion (3 to 6 plants) of each species, \$2.50 value, for.....\$2.00.

Water lily and Lotus Collection, 1 each of 5 species illustrating maximum variety (your choice of 2 lotus and 3 lilies or 1 lotus and 4 lilies), \$6.00 value for

Group D—Shallow Water Plants With Emergent Leaves

(The lotuses have a few floating leaves as well as the beautiful umbrella-like emergent leaves).

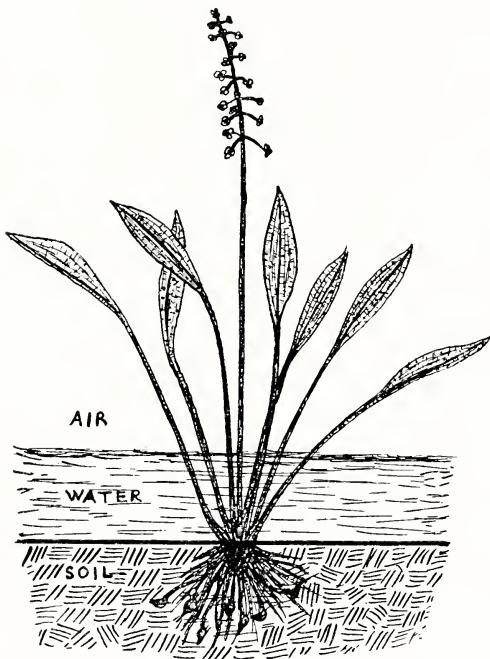
M-50	American lotus lily (<i>Nelumbo lutea</i>). Large beautiful, sweet scented yellow flowers. Dormant tubers or young plants.....	\$1.50 each
M-51	Sacred lotus of the Nile (<i>Nelumbo nucifera</i>). Large rose colored flowers. Tubers or young plants.....	1.50 each
M-52	Arrowhead (<i>Sagittaria lancifolia</i>). Lance shaped leaves, white flowers.....	\$0.50 for 3, \$1.25 per doz.
M-53	Arrowhead (<i>Sagittaria latifolia</i>). Broad arrow shaped leaves, with white flowers50 for 3, 1.25 per doz.
M-54	Arrowhead (<i>Sagittaria sp.</i>), narrow leaves, large silvery white flowers.....	.50 for 3, 1.25 per doz.
M-55	Pickerel plant (<i>Pontederia cordata</i>), blue flowers50 for 2, 2.50 per doz.
M-56	Cattail (<i>Typha latifolia</i>), broad leaf cattail.....	.50 for 4, 1.25 per doz.
M-57	Cattail (<i>Typha angustifolia</i>), narrow leaf cattail50 for 4, 1.25 per doz.
M-58	Wild rice (<i>Zizania aquatica</i>).....	.50 for 3, 1.25 per doz.
M-59	Domestic Rice (<i>Oryza sativa</i>), very ornamental, seed.....	.25 per lb.

The following should be planted in very shallow water near the shoreline and will creep out over the water.

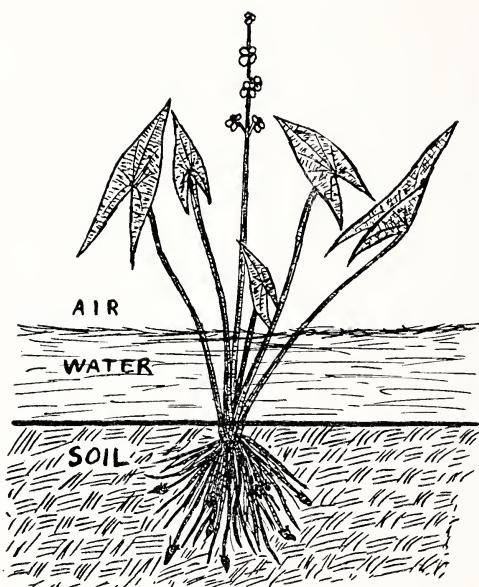
M-60	Water cress (<i>Roripa americana</i>).....	\$0.50 for 5, \$1.00 per doz.
M-61	Swamp loosestrife (<i>Ludwigia sp.</i>).....	.50 for 5, 1.00 per doz.

- M-62 Primrose creeper (*Jussiaea grandiflora*),
yellow flowers50 for 5, 1.00 per doz.
 M-63 Parrot's feather (*Myriophyllum proserpinacoides*)50 for 5, 1.00 per doz.

Water Garden Collection D. Five named species of emergent plants, our selection (no lotus included). One fifty-cent portion (2 to 5 plants) of each species, \$2.50 value, for..... \$2.00



Lance Arrowhead, *Sagittaria lancifolia*



Wapato Arrowhead, *Sagittaria latifolia*

Two of the most valuable plants in aquiculture, duck ponds and water gardens.

Group E—Shoreline Plants

We list below the best selection of ornamental shoreline plants. These should be planted, preferably in damp soil, at or near the water's edge, or in the pool in boxes or pots which rise to or project above the surface of the water.

- M-70 Water canna (*Thalia divaricata*) \$.50 each, \$4.00 per doz.
 M-71 Arrow arum (*Peltandra virginica*) \$.50 for 2, \$2.50 per doz.
 M-72 Calla lily (*Zantedeschia aethiopica*) \$.75 each, \$7.00 per doz.
 M-73 Egyptian paper plant (*Cyperus papyrus*) \$.50 each, \$5.00 per doz.
 M-74 Umbrella palm (*Cyperus alternifolius*) \$.50 each, \$5.00 per doz.

M-75	Royal fern (<i>Osmunda regalis</i>)	\$.50 for 2, \$2.50 per doz.
M-76	Spider lily (<i>Hymenocallis caribaea</i>)	\$.50 for 2, \$2.50 per doz.
M-77	Marsh marigold (<i>Calthra palustris</i>)	\$.50 each, \$5.00 per doz.
M-78	Willow (<i>Salix marginata</i>)	\$.50 each, \$3.00 per doz.
M-79	Cypress (<i>Taxodium distichum</i>)	\$2.50 each, \$24.00 per doz.
M-80	Buttonbush (<i>Cephalanthus occidentalis</i>)	\$.75 each, \$5.00 per doz.
M-81	Marsh mallow (<i>Hibiscus sp.</i>)	\$.75 each, \$5.00 per doz.
M-82	Iris (<i>pseudacorus</i>), yellow water flag	\$.50 for 2, \$2.50 per doz.

Water Garden Collection E. \$5.00 value of shoreline plants consisting of 1 each selected from the above list, our selection.....\$4.00

Hardy Native Iris.

We offer below for the first time, many of the rare and beautiful native Louisiana water Iris recently described by Dr. John K. Small of the New York Botanical Garden. Dr. Small considers the Delta of the Mississippi River to be the Iris center of the Universe. Native Iris will grow both on land and in shallow water, but thrive best in damp soil just at the shoreline. When planted on land, they do best when cultivated and well watered and should be planted in the furrows instead of on the hills. They will grow outdoors anywhere in the United States. All these offerings are beautiful horticultural subjects, flowering in the spring, the prices being determined chiefly by relative abundance.



Pickerel Plant, *Pontederia cordata*

These are ornamental as well as useful both in the water and on shore.

Big Blue Iris, *Iris giganticaerulea*

M-100	Iris virginica, lavender with darker purple etchings.....	\$.50 for 2, \$2.50 per doz., \$15.00 per 100
M-101	Iris fulva, coppery red.....	\$.50 for 1, \$3.00 per doz., \$17.50 per 100
M-102	Iris fulva, cerise red.....	\$.75 each, \$7.50 per doz.
M-103	Iris giganticaerulea, giant blue iris, violet blue with a white bordered yellow or orange crest.....	\$.60 each, \$3.50 per doz., \$20.00 per 100
M-104	Iris flexicaulis, blue and white iris.	\$.60 each, \$3.50 per doz., \$20.00 per 100.
M-105	Iris fourchiana, royal purple iris. Gold crested.....	\$1.50 each, \$15.00 per doz.
M-106	Iris moriflora, deep mulberry purple.....	\$1.50 each, \$15.00 per doz.
M-107	Iris vinicolor, wine colored iris.....	\$2.00 each, \$20.00 per doz.
M-108	Iris viridivina, reddish purple, green crested.	\$1.50 each, \$15.00 per doz.
M-109	Iris giganticaerulea, albino, lily white.....	\$2.50 each
M-110	Iris elephantina, ivory and gold.....	\$5.00 each
M-111	Iris miraculosa, blue toned white.....	\$4.00 each, \$40.00 per doz.
M-112	Iris sp., golden arrow, purple with spear shaped gold crest	\$2.00 each, \$25.00 per doz.
M-113	Iris sp., true blue.....	\$1.00 each, \$10.00 per doz.
M-114	Iris sp., pale blue.....	\$.75 each
M-115	Iris sp., Lafitte, blue.....	\$1.00 each
M-116	Iris sp., exquisite lavender.....	\$1.00 each

Collections of Named Water Iris.

American flag trio, consisting of one each of red (M-102), white, (M-109), and blue (M-113). List price if purchased separately \$4.25, collection price\$3.50

Rainbow collection, consisting of one each of coppery red (M-101), yellow (M-82), pale blue (M-114), violet blue (M-103), reddish purple (M-108), dark purple (M-106), lavender (M-100). Priced separately \$5.60, collection price\$4.50

Regal ten, consisting of one each of yellow toned white (M-110), blue toned white (M-111), yellow (M-82), coppery red (M-101), cerise (M-102), blue (M-115), golden arrow and purple (M-112), wine colored (M-107), royal purple (M-105), exquisite lavender (M-116). Priced separately \$18.00, collection price\$15.00

PART THREE

ANIMALS AND PLANTS FOR AQUARIA AND VIVARIA

We have listed below only those forms more generally in demand for aquaria and vivaria. Although listing a large assortment of both native and tropical species, we specialize primarily in the native species. We can also supply a large series of animals and plants not herein listed. Cultures, only, are quoted "postage paid". On other items transportation must be paid by the customer. For balanced aquarium assortments, see last page.

INVERTEBRATES

N-1	Paramoecium , the best infusorian food for newly born tropical aquarium fishes. Generous culture, postage paid, with instructions for rearing	\$1.00
N-2	Enchytraeus , the small white earthworm used for feeding half grown and adult aquarium fishes, newts, salamanders, etc. Generous culture, postage paid, with instructions for rearing.....	\$1.00
N-3	Tubifex , small aquatic earthworm for feeding aquarium fish, salamanders, etc. Generous culture, postage paid, with instructions for rearing	\$1.00
N-4	Tenebrio , meal worms, the best live food for large aquarium fish, salamanders, lizards, etc. Generous culture, postage paid, with instructions for rearing	\$1.50
N-5	Daphnia , the best live food for young fish, newts, aquatic salamanders, etc. Generous culture, with instructions for rearing.....	\$1.50
N-6	Crayfish . (State whether young or adult, large or small species preferred).....	\$.50 for 3, Ad. Sp., \$.12 each

Pond Snails:

N-7	Physa	\$.50 for 5, Ad. Sp., \$.05 each, 100 or more \$.04 each
N-8	Lymnaea	\$.50 for 3, Ad. Sp., \$.10 each
N-9	Planorbis	\$.50 for 5, Ad. Sp., \$.05 each
N-10	Viviparus malleatus , large Japanese pond snail.	\$.50 for 2, Ad. Sp., \$.15 each, 100 or more, \$.12½ each
N-11	Pontchartrain clams (Rangia cuneata). Excellent for keeping the water clear and sweet.....	\$.50 for 3, Ad. Sp., \$.10 each
N-12	Fresh water mussels.....	\$.50 for 2, Ad. Sp., \$.20 each
N-13	Dwarf clam (Pisidium Sp.). A small live bearing clam suitable for even the smallest aquaria..... Large clams and mussels can also be supplied. For aquarium assortments, see last page.	\$.50 for 3, Ad. Sp., \$.10 each

VERTEBRATES

Fish: Live fish are shipped by express only, in non-returnable cans.

To the price of the fish add container charges as follows:

5 gallon fish cans, holding 25 to 50 fish, according to size.....	\$.35 each
3 gallon fish cans, holding 10 to 30 fish, according to size.....	\$.25 each
1 gallon fish cans, holding 1 to 10 fish, according to size.....	\$.15 each

Examine all containers before taking delivery and have express company make out a bad order report in case of trouble.

The aquarium should be prepared in advance of ordering fish. Pond water, filtered through cloth, is more desirable than city water. Do not over-crowd. Sloping sand bottom is best. Siphon dirt from bottom once or twice a week or use clams, snails, tadpoles and plants to purify the water.

In addition to the aquarium species listed below, many types of native fishes can be collected on order, for research, aquaria or pond culture. Native fish can be shipped best during cool or moderately cold weather. Tropical species cannot be shipped during cold weather, the usual shipping season for these being from May to November, depending on weather conditions.

Viviparous Fishes (live bearers).

This group of fishes, in which the young are born alive, is perhaps the most interesting for aquarium purposes. The young can be fed on live Daphnia or finely powdered dry food in from ten to thirty minutes after birth. In this group the male usually exhibits more gaudy colors than the female, and the anal fin of the male develops into an organ of intromission, thus further distinguishing the sexes.

- N-21 *Gambusia patruelis (affinis)*, Louisiana Top Minnow. One of the best mosquito larvae destroyers known. Perhaps the hardiest of aquarium fishes. Large quantities for mosquito control work can be quoted at lower rates. Carnivorous.
Breeders..... \$.50 per pr., \$1.75 per doz., \$6.50 per 100
- N-22 *Gambusia holbrooki*, Florida. A beautiful variety with black spotted males. Carnivorous.
Breeders..... \$1.00 per pr., \$3.50 per doz.
- N-23 *Heterandria formosa*, Florida, Mosquito Fish. The smallest aquarium fish. Males never exceed three-quarters of an inch, females one inch. Carnivorous.
Breeders..... \$.50 per pr., \$2.50 per doz.
- N-24 *Lebistes reticulatus*, South America, Guppy, Peacock, or Rainbow fish. A small, hardy, prolific species, with brilliant varicolored males. Omnivorous.
Breeders..... \$.50 per pair, \$2.50 per doz.
- N-25 *Mollienesia latipinna*, Louisiana, Flag fin or sail fin. A beautiful native species highly prized for the large brilliant lace-like dorsal fin of the male. Omnivorous, but largely vegetarian, feeding upon microscopic

plants or filamentous algae. Can be kept with other species and will keep tank clean. A small amount of salt is best for this species.

Breeders.....\$1.00 per pair, \$4.50 per doz., \$18.00 per 100

- N-26 *Mollienesia latipinna*, Black variety, Louisiana. A jet black variety developed in New Orleans within the past ten years. Both sexes are black and breed true one hundred per cent. One of the most interesting aquarium fishes ever developed. Omnivorous, largely vegetarian.
Breeders.....\$4.50 per pair, \$20.00 per doz.

- N-27 *Xiphophorus helleri*, Mexico, Swordtail. Omnivorous.

N-27a Breeders, Green variety.....\$1.50 per pair, \$6.00 per doz.

N-27b Red femaleseach \$1.00

N-27c Breeders, Golden variety.....\$3.50 per pair, \$18.00 per doz.

- N-28 *Platypoecilus maculatus*, Mexico, Blue Moonfish, chiefly carnivorous.
Breeders.....\$1.25 per pair, \$6.00 per doz.

- N-29 *Platypoecilus nigra*, Mexico, Black Moonfish, chiefly carnivorous.

N-29a—Breeders.....\$1.50 per pair, \$7.00 per doz.

N-29b Hybrids of *Xiphophorus helleri* and *Platypoecilus*.....\$2.50 per pair

Oviparous Fishes (egg layers).

The largest group of fishes adapted to aquaria. Some species like the Danios lay non-adhesive eggs. With most species, however, the eggs are adhesive and adhere to plants or to the aquarium. Others are bubble-nest builders, the male constructing a nest of air bubbles in which he places the eggs after fertilization. In these the male also guards the nest valiantly until the young are hatched and it is necessary to remove the female after egg laying, and the male after the young are swimming freely.

- N-30 *Betta cambodia*, India. A beautiful cream-colored fighting fish with large, fringed red or blue fins and tail; recently introduced. Omnivorous, nest builder.

Extra fine breeders.....\$5.00 per pair

- N-31 *Betta splendens*, Siam. The Siamese fighting fish. We supply a reddish aquarium variety of this species showing iridescent patches of blue and green. The development of the fins and tail in this variety is very striking, being two to three times the size of the body. Omnivorous, nest builder.

Extra large developed breeders.....\$7.00 per pair

- N-32 *Carassius auratus*, Oriental, Common Gold Fish. While we do not specialize in gold fishes, we carry a fair stock of the fancy varieties generally in demand, and shall be glad to quote on the needs of customers, particularly for comets, fantails, and shubunkins.

Large breeders.....\$1.00 per pair. Additional specimens \$.25 to \$.50 each

- N-20 *Cyprinodon variegatus*, Louisiana, Sheepshead minnow. Prefers brackish water. Pond or swamp water with salt added is a good substitute. Omnivorous.

Breeders.....\$1.00 per pr., \$3.00 per doz.

- N-33 *Danio malabaricus*, East Indies, Giant Danio. A large beautiful species, 2 to 3½ inches. White and silver, with longitudinal gold and blue stripes. A fast mover. Omnivorous.
Breeders.....\$2.50 per pair, \$12.00 per doz.
- N-34 *Danio rerio*, Ceylon. Zebra Danio. Silvery with distinct light blue stripes which give it its name. Omnivorous.
Breeders.....\$1.00 per pair, \$5.00 per doz.
- N-35 *Fundulus chrysotus*, Louisiana, Killifish. The "piscatorial sunbeam." A beautiful, hardy, native species. Male, green with red spots, female, green with silver spots. Carnivorous.
Breeders.....\$1.00 per pair, \$4.00 per doz.
- N-36 *Fundulus heteroclitus*, Louisiana. Mummichog. A large, hardy species partial to brackish water. Carnivorous.
Breeders.....\$2.00 per pair, \$10.00 per doz.
- N-37 *Macropodus viridi-auratus*, China. Paradise Fish. One of the oldest of aquarium fishes and still a favorite. Cannot be kept with smaller species. Omnivorous, nest builder.
Breeders.....\$1.25 per pair, \$5.00 per doz.
- N-38 *Oosphromenus trichopterus*, East Indies. Spotted or Hair-fin Gourami. A handsome, large, bubble nest builder. Omnivorous.
Breeders.....\$2.50 per pair, \$12.00 per doz.

Amphibians.

The species supplied are among the best for the aquarium or vivarium.
(Complete list of Louisiana Amphibians sent on Request)

- N-40 Water lizard, Louisiana aquatic newt (*Triturus louisianae*).
.....\$.75 for 1, Ad. Sp., \$.50 each
- N-41 Japanese newt, red spotted newt, aquatic.
.....\$.75 for 1, Ad. Sp., \$.50 each
- N-42 Salamanders (Plethodont), several species for vivaria.
.....\$.75 for 1, Ad. Sp., \$.50 each
- N-43 Salamanders (*Ambystoma*), several species for vivaria.
.....\$.75 for 1, Ad. Sp., \$.50 each
- N-44 Axolotls (Aquatic larvae of *Ambystoma*), small species.
.....\$.50 for 2, Ad. Sp., \$.15 each
- N-45 Tadpoles, large, of bullfrogs, transformation of this and other frogs can be closely watched in the aqua-terrarium.
.....\$.50 for 2, Ad. Sp., \$.25 each
- N-46 Tadpoles, of smaller available species.....\$.50 for 4, Ad. Sp., \$12½ each
- N-47 Green tree frogs, weather frogs, cricket frogs, etc., for the vivarium, several beautiful species available. Special prices for collections.
.....\$.75 for 1, Ad., Sp., \$.50 each

Reptiles:

(Complete list of Louisiana reptiles sent on request)

N-50	Baby Alligators.....	\$1.50
N-51	Baby Turtles.....	\$.50 for 1, Ad. Sp., \$.25
N-52	Chameleons, American changeable lizard.....	\$.50 for 1, Ad. Sp., \$.25
N-53	Alligator lizard, a handsome species for the terrarium.	
		\$1.00 for 1, Ad. Sp., \$.75
N-54	Horned toads, in summer season.....	\$1.25 each
N-55	Snakes, harmless varieties, garter or water snakes.	
		\$1.50 for 1, Ad. Sp., \$.25
N-56	King snakes, harmless.....	\$2.50

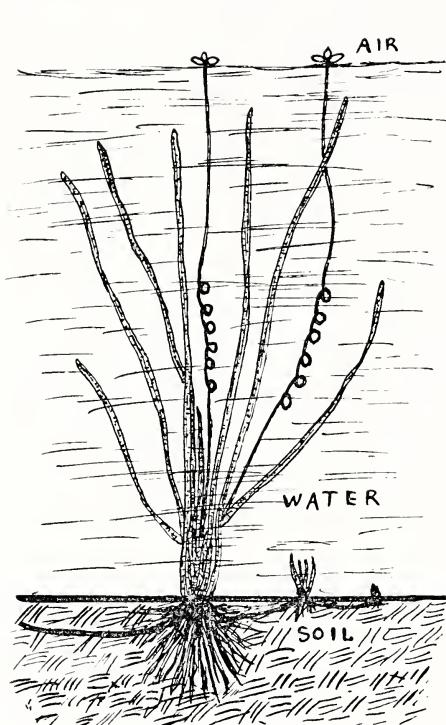
Venemous snakes can also be supplied.

WATER PLANTS FOR AQUARIA

For use in the aquarium, we have listed below a selection of water plants illustrating every type of root, stem, leaf, fruit and flower. Many are useful for aerating the water, others afford food, shade and shelter for fish and other life, while some are excellent harborage for nests or eggs. The large species of water plants which are most desirable for beauty of form or flower are listed in Part Two of this catalog. For instructions for planting water plants, see Part One. The same principles apply here on a smaller scale. For balanced aquarium assortments, see last page.

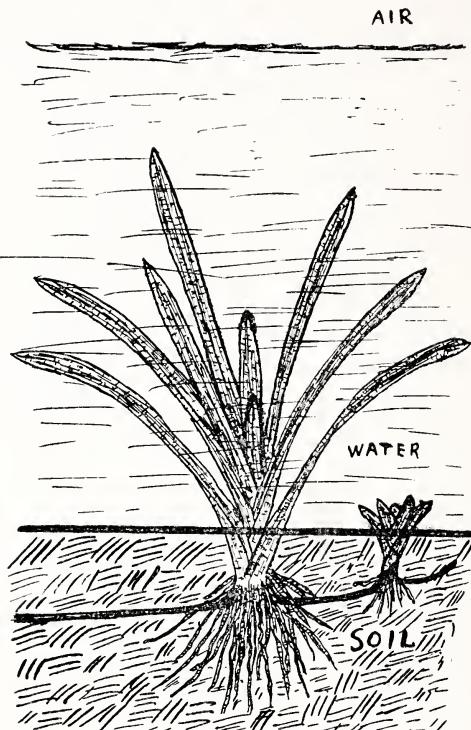
Group A—Water Plants With Submerged Leaves

N-100	Wild celery (<i>Vallisneria spiralis</i>).....	\$.50 for 6, \$.80 per doz.
N-101	Giant wild celery (<i>Vallisneria</i> sp.).....	\$.50 for 6, \$.80 per doz.
N-102	Fanwort (<i>Cabomba caroliniana</i>).....	\$.50 for 6, \$.80 per doz.
N-103	Anacharis, giant form, a cultivated variety (<i>Elodea canadensis</i>)	
		\$.50 for 6, \$.80 per doz.
N-104	Anacharis, wild form or ditch moss (<i>Elodea canadensis</i>)	
		\$.50 for 6, \$.80 per doz.
N-105	Anacharis, a beautiful tropical species (<i>Elodea</i> sp.).	
		\$.50 for 6, \$.80 per doz.
N-106	Crispy pond weed (<i>Potamogeton crispus</i>).....	\$.50 for 6, \$.80 per doz.
N-107	Fish grass (<i>Potamogeton pusillus</i>).....	\$.50 per portion
N-108	Water milfoil (<i>Myriophyllum spicatum</i>).....	\$.50 for 6, \$.80 per doz.
N-109	Coontail, hornwort (<i>Ceratophyllum demersum</i>)	\$.50 for 6, \$.80 per doz.
N-110	Muskgrass (<i>Chara</i> sp.).....	\$1.00 per portion
N-111	Stonewort (<i>Nitella</i> sp.).....	\$1.00 per portion
N-112	Bladderwort (<i>Utricularia</i> sp.).....	\$.75 per portion
N-113	Ribbon Arrowhead (<i>Sagittaria natans</i>).....	\$.50 for 5, \$1.00 per doz
N-114	Arrowhead (<i>Sagittaria sinensis</i>).....	\$.50 for 5, \$1.00 per doz.
N-115	Dwarf arrowhead (<i>Sagittaria subulata</i>).....	\$.50 for 6, \$.80 per doz.
N-116	Water moss (<i>Fontinalis disticha</i>).....	\$.50 per portion
N-117	Spatterdock (<i>Nymphaea sagittifolia</i>).....	\$.50 each
N-118	Needle grass (<i>Eleocharis</i> sp.).....	\$.50 for 6, \$1.00 per doz.
N-119	Bushy pondweed (<i>Naias flexilis</i>).....	\$1.00 per portion



Wild Celery, *Vallisneria spiralis*

Two of the most valuable plants in both indoor and outdoor pools.



Submerged Plant of Arrowhead, *Sagittaria*

- | | |
|--|--------------------|
| N-120 Leafy pondweed (Potamogeton foliosus)..... | \$1.00 per portion |
| N-121 Sago pondweed (Potamogeton pectinatus)..... | \$1.00 per portion |
| N-122 Clasping leaf pondweed (Potamogeton perfoliatus).... | \$1.00 per portion |

Group A—Aquarium Assortment of submerged plants, 5 named species, our selection, one plant, bunch or portion, of each species, suitable for stocking a 2 to 4 gallon aquarium.....\$1.00

Group B—Floating Plants.

- | | |
|---|------------------------------|
| N-130 Water hyacinths (Eichornia crassipes)..... | \$.50 for 5, \$1.00 per doz. |
| N-131 Water lettuce (Pistis stratiotes)..... | \$.50 for 5, \$1.00 per doz. |
| N-132 Frog bit (Lymnobium spongia)..... | \$.50 for 5, \$1.00 per doz. |
| N-133 Floating heart (Nymphoides peltatum)..... | \$.50 for 3, \$1.50 per doz. |
| N-134 Water fern (Salvinia natans)..... | \$.50 per portion |
| N-135 Crystalwort (Riccia fluitans)..... | \$.50 per portion |
| N-136 Floating fern (Ceratopteris thalictroides)..... | \$.50 for 3, \$1.50 per doz. |
| N-137 Duckweed, small floating water fern (Azolla)..... | \$.50 per portion |
| N-138 Duckweed (Lemma or Spirodela)..... | \$.50 per portion |

Group C—Rooted Plants With Floating Leaves.

N-140	Floating leaf pond plant (<i>Potamogeton natans</i>)	\$.50 for 6, \$.80 per doz.
N-141	Water poppy (<i>Limnocharis humboldti</i>)	\$.50 for 3, \$1.50 per doz.
N-142	Water shield (<i>Brasenia purpurea</i>)	\$.50 for 3, \$1.50 per doz.
N-143	White water lily (<i>Castalia minor</i>). Dwarf form for aquaria.	\$.50 each
N-144	Banana or yellow water lily (<i>Castalia flava</i>), small for aquaria.	\$1 each

Group B-C—Aquarium Assortment of Floating and Floating Leaved Plants, 5 named species, our selection (no water lilies included), one plant or small portion of each species, suitable for stocking a 2 to 4 gallon aquarium\$1.00

Group D—Water Plants With Emergent Leaves.

N-150	Arrowhead (<i>Sagittaria lancifolia</i>)	\$.50 for 3, \$1.25 per doz.
N-151	Arrowhead (<i>Sagittaria latifolia</i>)	\$.50 for 3, \$1.25 per doz.
N-152	Arrowhead (<i>Sagittaria</i> sp.)	\$.50 for 3, \$1.25 per doz.
N-153	Pickerel plants (<i>Pontederia cordata</i>)	\$.50 for 2, \$2.50 per doz.
N-154	Swamp loosestrife (<i>Ludwigia</i> sp.)	\$.50 for 5, \$1.00 per doz.
N-155	Primrose creeper (<i>Jussiae grandiflora</i>)	\$.50 for 5, \$1.00 per doz.
N-156	Parrot's feather (<i>Myriophyllum proserpinacoides</i>)	\$.50 for 5, \$1.00 per doz.
N-157	Alligator grass (<i>Alternanthera philoxeroides</i>)	\$.50 for 5, \$1.00 per doz.

Group D—Aquarium Assortment of plants with emergent leaves, 5 named species, our selection, one plant of each species, suitable for stocking a 2 to 4 gallon aquarium\$1.00

Group A-B-C-D—Aquarium assortment of 15 species representing all types of aquarium plants, our selection, one plant, bunch or portion of each species, suitable for stocking a 10 gallon aquarium\$2.50

Group E—Shoreline and Bog Plants for the swamp aquarium and for the terrarium.

For the swamp aquarium we recommend the use of rich sandy soil, preferably from a marsh or swamp. It can be placed in the aquarium on a slant so that the shallow water covers only part of the area and the remainder remains damp. Gambusias (N-21) or killifishes (N-23 or N-35) will prevent mosquitoes from breeding in it or a screen can be placed on top. The following animals are especially recommended for the swamp aquarium: Crayfish (N-6), *Lymnaea* (N-8), Water lizard (N-40), Salamanders (N-42 and N-43), treefrog and cricket frog (N-47), baby alligators (N-50), and baby turtles (N-51). The following plants already listed are also suggested: Floating fern (N-137), Duckweed (N-138), water poppy (N-141), Arrowheads (N-150, N-151, N-152),

Parrot's feather (N-156), and alligator grass (N-157). We recommend also the following shoreline plants:

N-160	Water canna (<i>Thalia divaricata</i>).....	\$.50 each
N-161	Arrow arum (<i>Peltandra virginica</i>).....	\$.50 for 2
N-162	Egyptian paper plant (<i>Cyperus papyrus</i>).....	\$.50 each
N-163	Umbrella palm (<i>Cyperus alternifolius</i>).....	\$.50 each
N-164	Royal fern (<i>Osmunda regalis</i>).....	\$.50 for 2
N-165	Spider lily (<i>Hymenocallis caribaea</i>).....	\$.50 for 2
N-166	Dwarf water iris (<i>Iris virginica</i>).....	\$.50 for 2
N-167	Four leaf clover fern (<i>Marsilia sp.</i>).....	\$.50 per portion
N-168	Marsh buttercup (<i>Ranunculus creticus</i>).....	\$.50 for 2
N-169	Marsh marigold (<i>Calthra palustris</i>).....	\$.50 each
N-170	Horsetail or scouring rush (<i>Equisetum sp.</i>).....	\$.50 for 4
N-171	Spotted red lily (<i>Lilium catesbaei</i>) bulbs.....	\$.50 each

Many species of native ferns, mosses, liverworts, etc., can also be supplied.

Group E—Assortment of Shoreline and hardy Bog Plants	for the swamp aquarium or terrarium, 5 named species, our selection, one plant of each species	\$2.00
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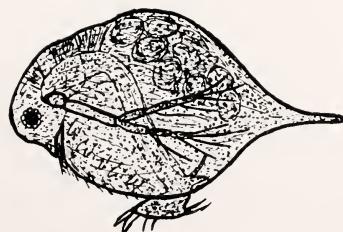
The Acid Bog Terrarium.

For true bog plants, a loose, sandy, sour soil from a bog or marsh is almost essential. A substitute can be made by mixing a loose, rich, acid or neutral garden soil with dead leaves, pine needles, florist's moss (*Sphagnum*), or peat moss, and allowing this to stand in the terrarium saturated with water for a period, or until an acid condition develops. Lime water or other hard or alkaline waters cannot be used to keep the bog moist. Rain water, or brown stained water from a marsh or swamp is best; at any rate it must be a soft water. Keep the soil saturated, but not flooded after planting. A loose fitting glass cover will hold the moisture and promote a vigorous growth. The following bog plants are recommended:

N-179	Little Club Moss (<i>Selaginella apus</i>).....	\$.50 per portion
N-180	Clubmoss (<i>Lycopodium chapmanii</i>).....	\$.50 per portion
N-181	Small pitcher plant (<i>Sarracenia purpurea</i>).....	\$.50 each
N-182	Tall pitcher plant (<i>Sarracenia flava</i>).....	\$.50 each
N-183	Sundews (<i>Drosera sp.</i>).....	\$.50 for 2
N-183-B	Filiform sundew (<i>Drosera filiformis</i>).....	\$.50 each
N-184	Peat moss (<i>Sphagnum sp.</i>).....	\$.50 per portion
N-185	Bog orchid (<i>Limnodorum tuberosum</i>).....	\$.75 each
N-186	Ladies tresses (<i>Gyrostachys gracilis</i>). A ground orchid.....	\$.75 each
N-187	Bog and March Orchids (<i>Habenaria sp.</i>), several species, bulbs.....	\$.75 each

BALANCED AQUARIUM ASSORTMENTS

- N-200 **Balanced Aquarium Assortment No. 1; 2 to 4 gallons recommended.**
 \$3.50 value, including container, for.....\$2.75
 Two native pond snails (*Physa* or *Planorbis*).
 One large Japanese snail (*Viviparus malleatus*).
 One Pontchartrain clam (*Rangia cuneata*).
 One aquatic newt (*Triturus louisianae*).
 Two tadpoles.
 One pair live bearing minnows (*Gambusia*).
 Two plants (*Vallisneria*).
 Two plants (*Sagittaria*).
 Two plants (*Elodea*).
 (Gold fish or tropicales may be added to this community a few weeks later after it has become established).
- N-300 **Balanced Aquarium Assortment No. 2; 5 to 10 gallons recommended.**
 \$6.50 value, including container, for.....\$5.00
 Six native pond snails (*Physa* and *Planorbis*).
 Two large Japanese snails (*Viviparous malleatus*).
 Two Pontchartrain clams (*Rangia cuneata*).
 Two aquatic newts (*Triturus louisianae*).
 Four tadpoles.
 Two pairs live bearing minnows (*Gambusia*).
 Four plants (*Vallisneria*).
 Four plants (*Giant Anacharis*).
 Four plants (*Sagittaria*).
 One water lettuce.
 One dwarf water lily.
 (Goldfish or tropicales may be added to this community a few weeks later after it has become established).

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